

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: David Johnson et al.
Serial No.: 09/776,656
Filing Date: February 5, 2001
Title: Liquid, Radiation-Curable Composition, Especially for Stereolithography
Examiner: C. Hamilton
Group Art Unit: 1752
Commissioner for Patents
Washington, D.C. 20231

DECLARATION OF RICHARD LEYDEN

UNDER 37 C.F.R. § 1.131

I, Richard Leyden, hereby state:

1. I am a co-inventor of the invention defined by pending claim 1 of the above-referenced patent application. Pending claim 1 reads as follows:

- "1. A liquid, radiation-curable composition comprising:
- a) 40 to 80 percent by weight of one or more than one compound having at least two epoxy groups,
 - b) 0.1 to 10 percent by weight of a cationic photoinitiator or a mixture of cationic photoinitiators comprising a sulfonium salt,
 - c) 2 to 30 percent by weight of a (meth)acrylate compound having at least one hydroxy group,
 - d) 5 to 40 percent by weight of a hydroxy compound having no unsaturated groups,
 - e) 0 to 30 percent by weight of at least one liquid poly(meth)acrylate having a (meth)acrylate functionality of more than 2 and having no hydroxy groups,

f) 0 to 40 percent by weight of at least one liquid cycloaliphatic or aromatic di(meth)acrylate having no hydroxy groups, and
g) 0 to 10 percent by weight of a reactive diluent,
wherein the sum of components a), b), c), d), e), f), and g) is 100 percent by weight, and components c), d), e), f) and g) are different, and the composition contains no free radical initiator selected from the group consisting of benzoin, acetophenones, benzil, benzil ketals, anthraquinones, triphenylphosphine, benzoylphosphine oxides, bisacylphosphine oxides, benzophenones, thioxanthenes, xanthenes, acridine derivatives, phenazine derivatives, quinoxaline derivatives, 1-phenyl-1,2-propanedione 2-O-benzoyl oxime, 1-aminophenyl ketones, 1-hydroxy phenyl ketones, and ionic dye-counterion compounds.”

2. I am the Director of global adhesives and tooling product development for Vantico A&T US Inc., 5121 San Fernando Road West, Los Angeles, California 90039-1011.

3. Ranjana Patel is the Patent Manager for Vantico Ltd., Ickleton Road, Duxford, Cambridge CB2 4QA, England, a sister company of Vantico A&T US Inc., which is also in the business of developing specialty chemical adhesive and tooling products. Ranjana is also involved in advanced tooling research and development work. Since 1999, Ranjana and I have conferred on a regular basis about Vantico product development and the management of Vantico's patent portfolio.

4. The idea for the invention of claim 1 arose out of a series of conversations between Ranjana and myself in August and early September of 1999, in which we decided to alter Vantico's commercial product 5170 by removing the free radical initiator I-184 from the formulation, leaving only the cationic photo initiator UVI 6974. We hoped to prove that a formulation without I-184 (the free radical initiator) would cure as well as, or perhaps better than, 5170, which contained both I-184 and UVI 6974.

5. At some point in early September 1999, I instructed Frank Tran, a chemist in Vantico's Los Angeles facility, to perform a series of experiments to support the above-noted modification of 5170. I understand that Frank Tran began running the experiments on September 10, 1999 and continued through December 27, 1999. Throughout this period, Frank kept me advised of the progress of his work.

6. On or before October 19, 1999, it became apparent to me that Frank's experimental compositions S179-39E and S179-39F, which differed from 5170 only with regard to the type and concentration of photo initiators, produced parts having green strength as good as or better than 5170.

7. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that the statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

May 15, 2003
Date

Richard Leyden
Richard Leyden